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ABSTRACT

This study sought to: (1) determine whether Educational Kinesiology (E-K) integration movements have an effect upon the static balance of learning disabled elementary students; (2) determine if E-K repatterning increases the effects of the movements; and (3) examine possible gender differences. Sixty elementary school students were matched on age and gender, and assigned to one of three groups,--repatterned E-K, the E-K movement group or the control group. The students in the repatterned and E-K movement groups utilized E-K exercises for 5-minute periods, twice a day, 5 days a week for 6 weeks. The control group was not involved with E-K at all. Static balance in all three groups was measured using the modified stork stand of Arnheim and Sinclair (1979) before and after the 6-week program. The results of the study support the notion that Educational Kinesiology is an effective treatment program to improve static balance of the learning disabled child. The results also suggest that E-K exercises are effective in themselves for improving balance, but the repatterning before the treatment program provides an even greater level of improvement than the movements alone.
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THE EFFECTS OF
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UPON THE
STATIC BALANCE OF LEARNING DISABLED
BOYS AND GIRLS

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THE EFFECTS OF EDUCATIONAL KINESIOLOGY UPON THE STATIC BALANCE OF LEARNING DISABLED BOYS AND GIRLS. Guruchiter K. Khalsa, Chino Unified School District; Josie M. Sift, California State Polytechnic University, Pomona, AAHPERD National Convention, Las Vegas, NV, April 1987.

Balance has generally been considered as a fundamental skill in the field of physical education. The literature suggests that it is a prerequisite for all other motor skills, including many everyday living tasks and activities. Researchers have indicated that students with learning handicaps perform lower on gross motor tests and specifically in the area of balance. Rarick, Widdop, and Broadhead (1970) report that both educable and trainable mentally retarded children lag behind children of normal intelligence in the development of gross motor skills. Over the years, various tests of balance have been used to measure both static and dynamic balance. Research in the area of static balance indicates that there is a difference in performance scores when the eyes are open versus when they are closed. Arnheim and Sinclair (1979) developed a modified stork stand test which evaluates static balance with minimal equipment and takes into account both the eyes open and eyes closed performances.

Various perceptual motor programs have been developed over the years to remediate learning disabilities through movement patterning. Delacato (1968) presented a system of neurophysiological organization which establishes normal patterns of motor behavior through a system of passive or active movements based on normal reflexive behavior. The new field of Educational Kinesiology, developed by Dennison (1981) incorporates the work of Delacato, along with information from yoga, accupuncture, developmental psychology, linguistics, and hemispheric

specialization. The program utilizes simple body movements to integrate the functions of the brain for optimal performance.

Studies in Educational Kinesiology are beginning to demonstrate an improvement in academic performance after practicing E-K techniques, but very little is available on the improvement of motor skills using E-K. Therefore, it was the purpose of this study to 1) determine whether Educational Kinesiology integration movements have an effect upon static balance, 2) determine if E-K repatterning increases the effect of the movements, and 3) examine possible gender differences.

Methodology

Subjects

Sixty elementary school students, ranging in age from 7 to 11 years, from the Chino Unified School District in California participated in the study. The students were classified as learning handicapped or learning disabled by diagnostic teams, and therefore required a special education program. At the time of testing all students were enrolled in the Special Day Classes at the elementary school sites. The parents of each child were informed about the testing procedures, and consented to their child's participation in the study prior to the beginning of the program.

Equipment

A three-foot balance board, measuring 1.7 by 1 inch, was utilized for the modified version of the stork stand test (Arnheim & Sinclair, 1979). A stopwatch and blindfold were also required for the evaluation of static balance ability.

Procedures

The subjects were matched on age and gender, and they were assigned to one of three groups: 1) Repatterned E-K, 2) The E-K movement group, or 3) the control group. The students in the repatterned and E-K movement groups utilized E-K exercises for five minute periods, twice a day, five days a week for six weeks. The control group was not involved with E-K at all. Static balance in all three groups was measured using the modified stork stand before and after the six-week program.

The testing situation consisted of the following. Each child was given one practice trial for each foot with eyes open and with eyes closed or blindfolded. Then, the child was given three 10-second trials in each of the four conditions- left leg, eyes open; left leg, eyes closed, right leg eyes open, right leg eyes closed. The mean score from each condition was then combined to serve as the total balance score, with a total of 40 seconds possible.

Children in the E-K repatterned group were involved in a 10-minute E-K repatterning procedure on an individual basis during the week following the pretest. The Dennison Laterality Repatterning consisted of homolateral and contralateral arm and leg movements in combination with a specified eye movement in order to access the appropriate hemisphere of the brain. (See Dennison and Hargrove, 1985 for a complete description of the procedure.)

The E-K movement group and the E-K repatterned group then entered into a 6-week treatment program, utilizing five of the basic E-K movements: deepening attitudes, Cook's hook-up, positive points, cross-crawl, and thinking cap (Dennison & Hargrove, 1985). The program

was conducted by the classroom teachers and was scheduled five days per week, two times per day. The two treatment groups engaged in 5-minutes of E-K movements in the morning after arriving at school and again after lunch in the afternoon. During the E-K time, the control group began their normal academic class activities.

Results

A gain score was computed for each student by subtracting the pre-test score from the post-test score. The gain scores were then analyzed using a 2 x 3 (gender x group) analysis of variance. The results of the analysis indicated a significant difference at the .0001 level between the three groups. Out of a possible 40 seconds, the groups showed the following improvements: Control = .34 ($s=2.47$), E-K movement = 4.91 ($s=2.37$), and Repatterned = 7.62 ($s=4.88$) seconds, respectively. (See Table 1 for a complete listing of means and standard deviations by gender, group, and the various interactions.)

A Scheffe post hoc analysis indicated that the results of the groups were significantly different from one another. The repatterned group showed a greater improvement in static balance than the E-K movement group, who in turn showed a greater improvement in balance than the control group. There was no significant difference ($p>.05$) between the improvement of the boys and girls, or in the interaction effect between gender and group.

Table 1

Mean Gain Scores and Standard Deviations in Seconds
as a Result of the 2 X 3 ANOVA

Gender	N	Mean	S.D.
Males	30	3.97	5.00
Females	30	4.61	4.09
Group	N	Mean	S.D.
Control	20	0.34	2.47
E-K	20	4.91	2.37
E-K Rep.	20	7.62	4.88
Interactions	N	Mean	S.D.
Male/Con	10	0.16	3.27
Male/E-K	10	4.29	1.94
Male/Rep.	10	7.46	6.04
Fem/Con	10	0.51	1.43
Fem/E-K	10	5.53	2.69
Fem/Rep.	10	7.78	3.71

Discussion

The results of this study support the notion that Educational Kinesiology is an effective treatment program to improve static balance of the learning disabled child. The results also suggest that E-K exercises are effective in themselves for improving balance, but that repatterning before the treatment program provides an even greater level of improvement than the movements alone. Finally, the results indicate that E-K can be used effectively in a coeducational setting, as there were no gender differences identified. Further research is needed in this area to determine E-K's effectiveness with other motor skills and with other groups of individuals.

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